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ABSTRACT

This report assesses the changes occurring in both South Korea and the People's Republic of China regarding educational development. It is noted that with the introduction of advanced technology, both Korea and China have tried to catch up with international developments. Additionally, in order to compete successfully on the world market, both countries have tried to achieve economic reform, together with educational reform, based on free market mechanisms. The report focuses on the manpower availability and development among the citizenry in light of efforts to modernize. Manpower status and demand are presented and compared between the two countries and the following observations are presented: (1) both countries need a higher quality labor force; (2) the manpower supply system needs to be developed in a way that directs greater attention to the quality of higher education; (3) China needs to increase enrollments and to expand facilities in higher education, and Korea needs to formulate a policy to provide support for the improvement of conditions for graduate education in science and technology; and (4) both China and Korea need to increase the numbers of high school students with vocational/technical skills and knowledge. Appendices list 5 goals of China's 1985 Educational Reform Report and 10 recommendations made by Korea's Educational Reform Committee in 1985-87. Contains 25 references. (GLR)

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The Educational Reform in Korea and People's Republic of China Within a Trans-national Context

By
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HE 025 214

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I. Introduction

The essential goal of education in any country is overall national development. Education in Korea has played a significant role in relation to political, economic and socio-cultural development which has contributed greatly to national development. The major concern of the latest reform of education in Korea (1985-87) is the efficiency of education for national development.

Education is very important to national development, even in a very restricted communist country. The recent educational reform, in the 1980s in People's Republic of China (China), is very much determined by economic reform. The crucial resource in China's march to modernization are its scientists, technicians and students. After the Cultural Revolution, Chinese rulers realized that education was very important to the economic development of the country. For the modernization of the country, they believed that educational reform was inevitable.

Carnoy, Apple, and Levin (Kelly & Altbach 1986) argue that the nature of economic systems and of state control, make the difference as to what schools teach and as to the outcomes of education. The process of educational reform is strongly influenced by the economic environment. Nobody disagrees that the changes brought on by technology, internationalism, and free-market mechanism caused influences in both Korea and China. Therefore, the educational reform in both countries needs to be analyzed within a trans-national context. There is yet another similarity between China and Korea: Both in China and Korea central government has

more power and bears greater responsibility for the development of education. The educational systems in both countries are very centralized.

There have been several major educational reforms as means of a better national development plan in Korea, since the 1950s. For example, the main goal of each is as follows (Korean Educational Reform Committee, 1987):

50s: Basic education

60s: Quantitative growth

70s: Educational innovation

80s: High quality

Specifically, the major focus of educational reform in the 1960s was on modernization. On the other hand, although there was a mass education movement in the 1920s-40s, and in the 1950s, the major large scale educational reform effort only began in the 1980s in China. In May, 1985, the Central Committee of the Communist Party of China decided that there was a need for educational reform for China's modernization (Chinese Reform Document, 1985). China also emphasized modernization in the reform effort (see Appendix).

II. Manpower Training

Korea has experienced not only a rapidly growing educational system during the past thirty years, but also a rapidly growing economy. Korea's economic modernization and growth were possible only because human resource existed in abundance. One of the most urgent tasks in recent educational reforms was to foster an

adequate and qualified supply of manpower through the expansion of educational opportunities. Also in the Chinese Reform Report (1985), it was said that the fundamental aim of restructuring education was to improve the quality of the nation and produce as many skilled people as possible. It further argued that a vital factor for the success of national development lay in the availability of skilled people, which requires the vigorous development of education as economic growth allows.

Although both Korea and China set the objectives of modernization as advanced countries, China is far behind Korea in economic development, and in the quality of the labor force. According to the World Bank (1989), GNP per capita in China is 290 U.S. dollars in the category of low-income economies, whereas GNP per capita of Korea is 2,690 U.S. dollars in the category of upper-middle-income economies.

The quality of the labor force is, in large measure, determined by education. The comparison of enrollment rates between Korea and China shows great discrepancies.

Table I. Percentage of age group enrolled in education

	Primary		Secondary		Tertiary	
	1965	1986	1965	1986	1965	1986
China	89	129	24	42	0	2
Korea	101	94	35	95	6	33

Source: The World Bank, 1989.
(Note. Figures are expressed as the ratio of pupils to the

population of school-age children. For some countries with universal primary education, the gross enrollment ratios may exceed 100 percent because some pupils are younger or older than the country's standard primary school age.)

At the secondary school level, in 1986, the enrollment ratio of China was less than half of that of Korea; worse, the enrollment ratio of China, in 1986, was far behind that of Korea in 1965, in higher education.

Figure 1 illustrates the discrepancy of the higher education enrollment ratio between China and Korea, with other selected nations. With 1983 as the base year, the government of China has examined three different enrollment plans based on different target enrollment ratios: low, an enrollment ratio of ten percent by 2000; medium, an enrollment ratio of 12.5% by 2000; and high, an enrollment ratio of 15% by 2000 (World Bank, 1986). Even the high projected enrollment ratio in China, in 2000 is much lower than the enrollment ratio in Korea, in 1983.

As the industrial structure has been transformed into the advanced type of the developed countries in Korea, educational policy in Korea has pursued the innovative development of higher education specifically aimed at the cultivation of high level manpower. Because Korea is expected to develop into a highly industrialized society in the 1990s, the recent educational reform emphasizes the rapid increase of the requirement for scientific and technological manpower (Korean Educational Reform Committee, 1987). Especially, the reform report (Ibid) put an emphasis on the development of special areas in the basic sciences, such as space

sciences, energy, and nuclear physics.

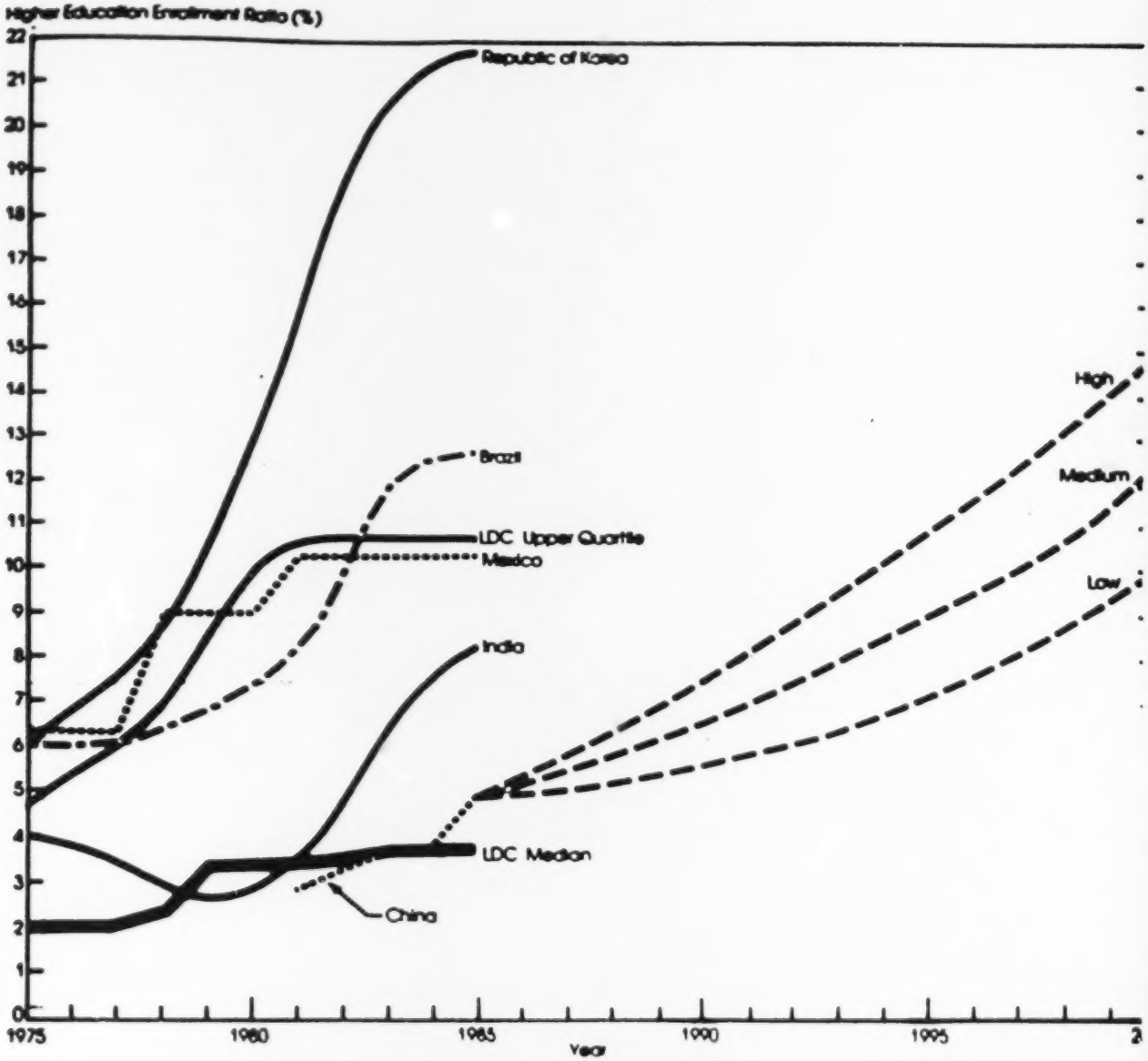

Figure 1: Higher Education Enrollment in China and Other Selected Nations

Source: World Bank Comparative Education Indicators

An international comparison of the percentage of college graduates among the work force shows that China has a long way to go. Only a little over three percent of the workers in the industrial and service sectors in China are college graduates, as compared to about 15 percent in the U.S.S.R. and the U.S., and almost seventeen percent in Japan (Lőfstedt, 1984). The economic reform in the 1980s has provided unprecedented incentives for operating universities in China. This has led to a boom in the number of higher institutions. The total number of higher institutions grew from 633, at the end of 1979, to 1,017 by the end of 1985 (see Table II).

Table II. Number of Higher Institutions by Year

End of Year	No. of Higher Institutions
1979	633
1980	675
1981	704
1982	715
1983	805
1984	901
1985	1017

Source: China's Recent Education Reform, 1986

The chief goal of the recent educational reform in China is to achieve a significant expansion of higher education by the end of the century.

Traditionally, the majority of junior high school graduates go to academic senior high schools in both China and Korea regardless of their continuing higher education. Strongly influenced by the Confucian educational ideals, peoples in both countries still respect scholars, whereas both put less emphasis on vocational training (Munch & Risler, 1987). Just as higher-level manpower is required in an advanced country, so too is more middle-level trained personnel needed.

Although the majority of junior high school graduates in China go on to academic senior high schools, only about seven percent of them are able to go on to higher education, and some become unemployed (Ming, 1986b). Consequently, many junior and senior high-school graduates lack the vocational skills necessary for employment. There was widespread youth unemployment during the late 1970s and early 1980s in China. One solution to the unemployment was to allow self-employment (Ibid). This was a crucial move in transforming the economic structure. Self-employment has prompted the emergence of a large number of vocational training facilities. Unlike traditional vocational high schools, where admission implies an automatic allocation of a job upon graduation, these new vocational high schools (the zhiye gaozhong) prepare graduates for a field, but not for a guaranteed job (Ming, 1986b; Munch & Risler, 1987). The vocationalization of Chinese secondary schools represents a great change from previous thinking in the planned economy.

The Chinese Reform Report in 1985 argued that secondary

vocational and technical education is most urgently needed for economic development. This report also proposed vocationalizing secondary education so that the general vocational ratio at the senior secondary level would change from the then 7:3, to a target of 5:5 in five years' time. The growth rate of technical and vocational schools has been almost three times that of general senior secondary schools in China. The expansion in agricultural/ vocational schools is particularly spectacular (see Table III). Despite the considerable efforts which have been made and the success achieved, vocational secondary schools still have only a modest percentage compared with China's real need for people with vocational qualifications.

Table III. Number of Senior Secondary Schools by Type

	1984 (000s)	% of total	83/84 Growth (%)
Secondary specialized	811	7.7	17.8
Secondary teacher training	511	4.8	12.4
Craft school	639	6.0	21.7
Agricultural/vocational	1745	16.5	43.0
Subtotal	3706	35.0	28.3
General senior	6898	65.0	9.7

Source: China's Recent Education Reform, 1986

The student enrollment in vocational high schools has decreased, from 916,983 in 1986, to 835,216 in 1989, whereas that of general high schools have increased from 1,345,414, in 1986, to

1,490,846 in 1989, in Korea (Korean Ministry of Education, 1989). Sixty three percent of general high school graduates, however, were spilled into the labor force without vocational skills in Korea (Kim & Yun, 1984). Therefore, the recent Reform Report (Korean Educational Reform Committee, 1987) advocates massive investment in vocational education, to expand vocational schools, and to improve the quality of vocational education. For an incentive for vocational high schools, the Reform Report in Korea proposed three suggestions: Expansion of scholarship assistance, free or low cost accommodation in dormitories, and exemption from military service (Ibid).

III. Supply and Demand of Manpower

In order to explore corrective measures and ensure a balance between the demand and supply of manpower, a study of labor force demand against the existent capacity of supply is important. The relationship between supply and demand of manpower, in turn, influences the occupational structure. The employment system differs between Korea and China. Whereas employment in China is encouraged by a centralized placement system, under which individuals completing training courses are allocated to work units according to the needs of the latter, employment in Korea is dependent on the free market mechanism. Therefore, the labor force structure in each country will be analyzed separately.

The total number of employees in Korea is likely to increase, from 13.66 million in 1979, to 18.45 million in 1991. Looking at

the increasing trend by occupational field, agricultural and fisheries are expected to see a gradual reduction, while mining/ manufacturing and tertiary industries are expected to experience a substantial increases in employment (see Table IV). There will be a tangible increase in the numbers of professionals, technicians, administrators and managers, while the bulk of farmers and fishermen will shift into other occupations. Such a transformation of the occupational structure is the result of an increasing demand for the occupations which require a higher attainment of education.

Having projected the demand for manpower into 1991, it is necessary to examine the current supply and consider some measures to balance supply with demand. The present sources of supplying high level manpower include colleges/ universities and junior technical colleges (including junior teacher's colleges).
Assuming the present sources of supply, there will be 93,400 college graduates, and 92,000 junior college graduates in excess of the requirements, during the period 1979-91, in Korea (see Figure 2). From the viewpoint of manpower, there is little need to increase student graduation quotas at colleges or universities beyond the scope which has already been made public in 1980, although it may be subject to reconsideration from the viewpoint of social demand (Kim & Yun, 1984).

Science and technical manpower include scientists, engineers, and craftsmen. The required number of science and technical manpower was 641,000 in 1979, 1,044,000 in 1986, and 1,402,000 in

1991, in Korea. Their composition ratios to total demand, in all occupations, are 4.49 %, 6.24% and 7.60% respectively (Ibid).

Table IV. Projected Manpower Demand by Industry

Unit: Thousand

Industry	1979	1981	1989	1991	Annual Over. Inc.(%) 1982-86	Annual Over. Inc.(%) 1987-91
Total	13,663.9 (100.0)	14,288.9 (100.0)	16,714.0 (100.0)	18,454.0 (100.0)	3.17	2.00
Agr.& Fishery	4,887.0 (35.77)	4,896.0 (34.24)	4,515.0 (27.01)	3,822.0 (20.71)	-1.63	-3.39
Mining & Manuf.	3,237.0 (23.69)	3,552.6 (24.85)	4,287.3 (25.65)	5,100.5 (27.64)	3.83	3.53
Mining	111.0 (0.81)	117.6 (0.82)	129.5 (0.77)	140.0 (0.76)	1.95	1.57
Manuf.	3,126.0 (22.88)	3,435.0 (24.03)	4,157.8 (24.88)	4,960.5 (26.88)	3.89	3.59
Social overhead	5,539.9 (40.54)	5,850.3 (40.91)	7,911.7 (47.34)	9,531.5 (51.65)	6.22	3.80
Social overhead	1,510.6 (11.06)	1,652.2 (11.55)	2,275.0 (13.61)	3,203.9 (17.36)	6.61	7.09
Others	4,029.3 (29.48)	4,198.1 (29.36)	5,636.7 (36.73)	6,327.8 (34.29)	6.07	2.34

Source: KEDI, 1984

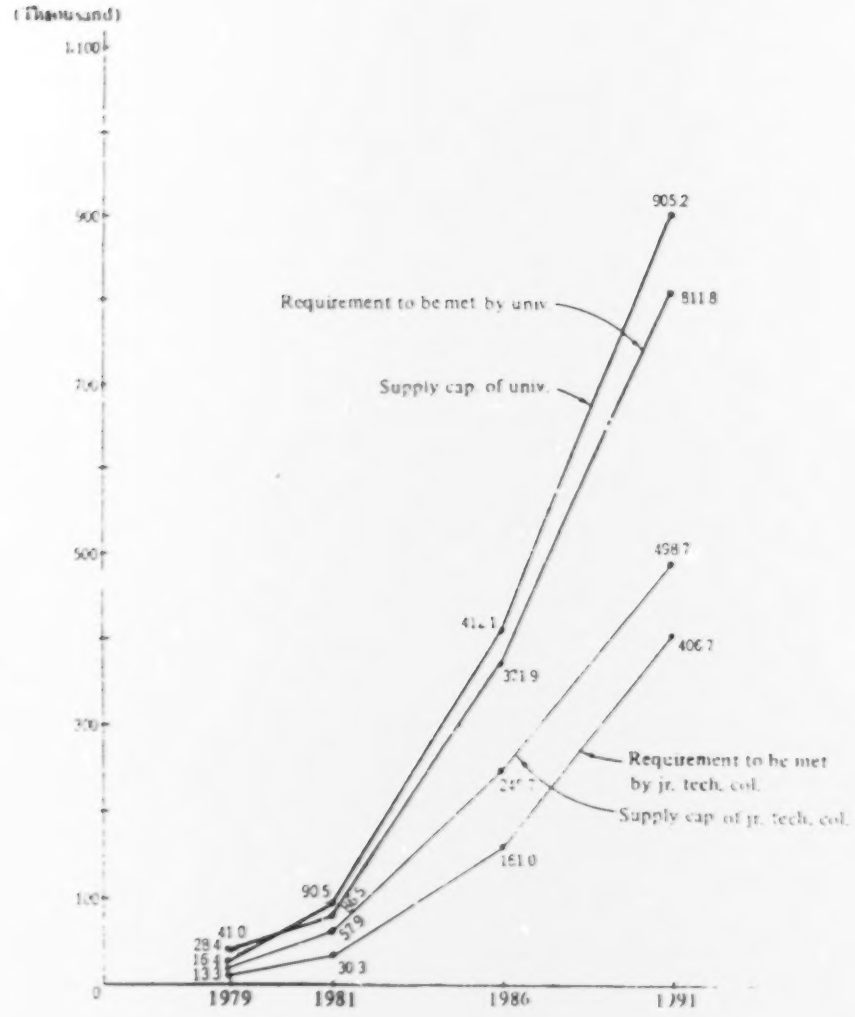

Figure 2: Demand and Supply of High-Level Manpower

Source: KEDI, 1984

In the case of scientists, there will have been a shortage of 30,000, in the period 1979-91 (see Figure 3), providing that the present enrollment quota of the graduate schools related is maintained. In order to fill this gap, it is required that the admission quota be increased by 5,000 each year, in the period 1987-1991 (Ibid). Assuming the present supplying sources of engineering colleges are maintained, the period 1979-91 is expected to see a surplus of training capacity of junior technical colleges and almost balanced capacity of engineering colleges in Korea (see Figure 4). In the case of craftsmen, a shortage of 15,000 is registered for 1979; 66,000 for 1982-86; and 27,000 for 1987-91, in Korea (see Figure 5).

In summary, Korea needs to strengthen both vocational/ technical high school education, and graduate study in science. To secure the required number of skilled workers, the recent reform report proposed emphasis on science education and excellence in higher education (see Appendix). Table V clearly shows the trend in the demand for manpower, from the 1960s to the 1990s in Korea. As the industrial structure changes from labor-intensive light industry to high-tech industry, so the manpower needs to shift from technicians and low-level engineers, to scientists and research engineers.

The educational system continues to be closely tied to the employment system in China. Individuals completing training courses are allocated to work units according to the needs of the latter, so that for some training courses there exists what can be called

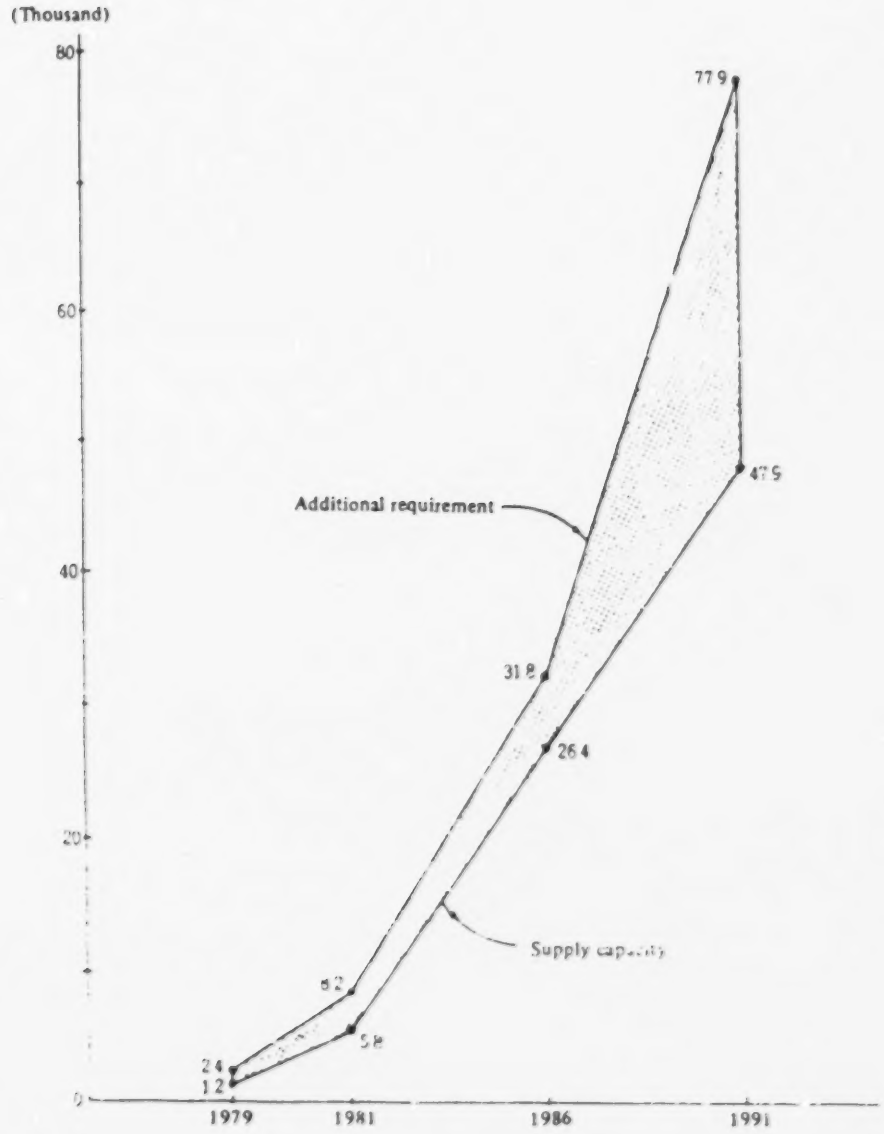

Figure 3: Demand for and Supply of Scientists

Source: KEDI, 1984

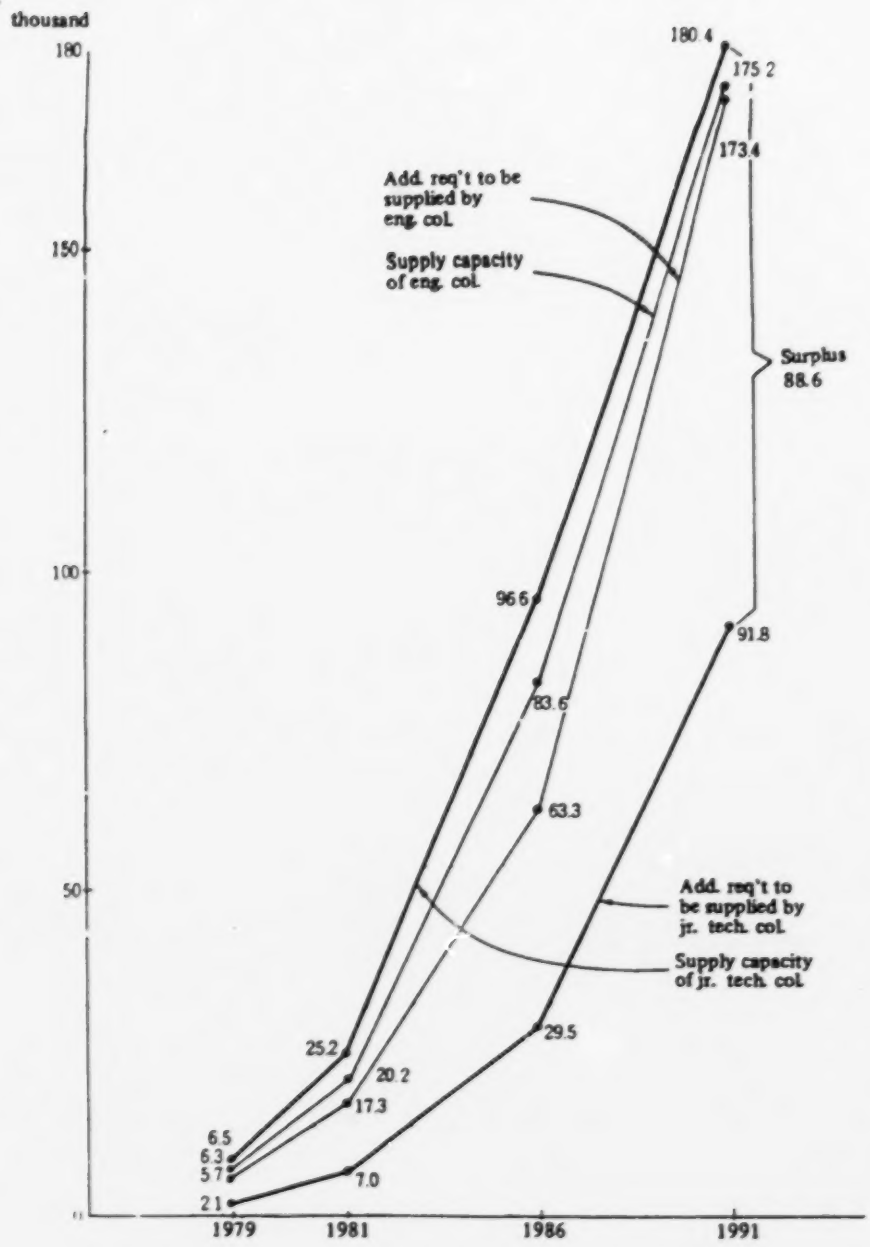

Figure 4: Demand for and Supply of Engineers

Source: KEDI, 1984

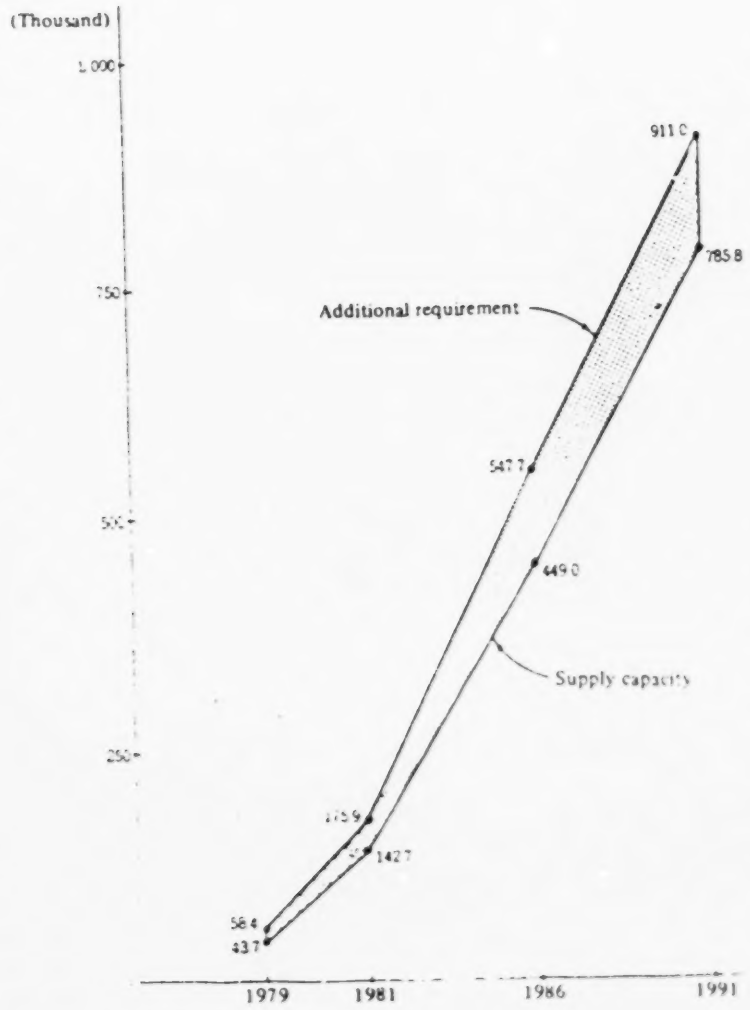

Figure 5: Demand for and Supply of Craftsmen

Source: KEDI, 1984

Table V. Higher Education and Economic Development: A Synoptic View of Mutual Relationship

Period	1960's	1970's	1980's	1990's
Industrial Structure	labor-intensive light industry	transition from light to heavy industry	heavy and high tech industry	heavy industry with specialization/ high tech industry
Patterns of Technology Transfer	foreign aid and technical assistance/ labor intensive technology/ unilateral transfer	transfer of sunset technology/ transition from labor to capital intensive technology/ dependent transfer via vertical international division of labor	transfer of matured and advanced technology/ capital and knowledge intensive technology/ dependent transfer via vertical and horizontal division of labor/ foreign direct investment	transfer of technology in early stage of development/ via cross licensing, joint venture, and research collaboration/ knowledge intensive technology/ horizontal generation of endogenous technology
Educational Emphasis (manpower targets)	technicians and low-end engineers	engineers and research scientists	scientists and research engineers	scientists and research engineers
Qualitative nature of science and technology education	absorption and imitation	imitation and improvement	creative assimilation and innovation	innovation and invention

Source: Tai Won Park, "Higher Education and Technological Innovation in Economic Development of Korea", Pacific Focus, 1:2(Fall 1986), pp. 5-22. p.9.

a "job guarantee." This applies to the universities, technical colleges, technical high school and the skilled worker schools run by the enterprises (Munch & Risler, 1987).

Despite the centrally managed assignment system in use so far, a considerable mismatch between output and employment can be found in many areas in China. A report prepared in 1983 by the Ministry of Labour and Personnel, the Ministry of Agriculture, Animal Husbandry and Fishery, the Ministry of Forestry and the Ministry of Finance, stated that more than one million people had graduated from colleges and vocational schools of agriculture and forestry; but in October, 1981, only 480,000 of them were working in the fields for which they had been trained (Ibid).

By the end of 1979, China had a labor force of about 405 million. Of these, seventy five percent were engaged in agricultural production, some thirteen percent were industrial workers, and approximately ten percent were employed in the service sector (Ibid). Although workers are 'assigned' to specified employment in most cases, there is a gradual but marked transfer from basic crop production to other occupations in Chinese rural areas. Projections suggest that by 1990 some 110 million surplus workers will be available, from and in the countryside, because of mechanization in agriculture (King, 1984). With the continuous modernization of agricultural production, the shift of surplus rural workers into non-agricultural activities is bound to grow. For this reason, the Chinese government has resolved to diffuse urban-style occupational and educational opportunities further and

further into the countryside (Ibid).

From 1949 to 1981 a little over three million professionals were trained in China. The majority of them were engineers and technicians. In order to modernize China by the year 2000, large numbers of new specialists will have to be trained. The three million graduates, plus some seven million who have been trained on the job constitute the force available at present. It has been calculated among central planners in China that by 1990 twice as many as the present ten million will be needed, and that by the end of the century forty million skilled personnel at all levels will be required (Lőfstedt, 1984).

In 1982, technicians and engineers comprised just over one half percent (0.56%) of the total labor force in China, and forty-two percent of them were university graduates. In comparison to other middle-income countries where technicians and engineers may represent two percent to three percent of the labor force, the proportion of technicians and engineers in the labor force in China was low (World Bank, 1986). In the remaining seventeen years, the main thrust in national development will be on technological reforms in the various enterprises, improved management, and more reliance on economic incentives.

Chinese Reform Document in 1985 actually attempts to expand the technical/vocational training notion so as to make it another universal requirement. It is actually saying that graduates of the school system, at any level, should be required to undergo some sort of vocational/technical education (at least short-term

training), before they enter jobs. The reasons for this ambitious target are related to the shortage of middle-level skilled manpower.

While today there is a need for more trained specialists from liberal arts, law and economics institutions, it is also necessary to correct a number of imbalances between engineers and technicians in China. The engineer/technician ratio is abnormal: 4:1 (King, 1986). In developed countries the ratio of engineers to technicians normally ranges from 1:3 to 1:10, whereas in China the reverse is often the case (Lőfstedt, 1984). The need for more middle-level trained personnel has thus been stressed repeatedly in recent years, however, the shortage will not be easily overcome.

IV. Individual Modernization

The expansion of education has contributed to the rapid economic modernization of both Korea and China. Both countries have made several educational reforms for the industrialization of their economics. But, these efforts done by governments have also affected individual life in an unexpected way, which the centralized governments of Korea and China never have intended.

The people in both countries have begun to request political reforms as well. As they have become more exposed to the concept of freedom in the market, they have begun to open their eyes to their rigid regimes. Thus the educational reforms in both countries have eventually contributed to creating the "modern man," who, according to Inkeles' definition (1974) are ready for new

experiences and are open to innovation and change.

We all have witnessed the recent wave of protests in Korea and China, particularly the crackdown in Tiananmen Square, in Beijing. Confucian values, which root deeply in both societies, and include reverence for higher learning, support the notion that students represent the conscience of people. Students of both countries do not hesitate to discharge what they perceive to be their moral obligation.

In general, education increases politicization. It heightens public awareness, civic sensitivity, and a sense of social efficacy. Young-ho Lee (1970), for example, found that the more the Koreans are educated, the more they tend to be politically oriented. They also are more concerned about national issues.

Under these circumstances, individual modernization could be a mixed blessing, from the national government's perspective. It is clear that Korea's leadership sought to control the value content of education as it expanded; to use education to promote economic development while avoiding political liberalization.

Even though the ideology of China is basically different from Korea's, China is on the same path as Korea. Some of Deng's own economic reforms have made his police state less efficient. The introduction of free markets eliminated the need for ration cards, which in the past helped the authorities keep track of people. The "opening" to the outside world not only allowed foreigners to enter the country; it also made it easier for the Chinese to leave. As beneficiaries of a freer economy, that has made life better for

millions of Chinese. The students now want to free China's rigid political system, too. Emboldened by ideals from Western philosophers, such Locke, Rousseau, and Mill, the students want more local elections, a freer press, and greater career freedom.

In a society whose leaders seek to avoid political controversy, where ideological loyalty and national unification are primary values, these "modern men" might well prove to be a source of difficulty for the government. This would be especially true if the government decides to forego the benefits of open democracy in order to insure complete control over political action. We might expect to find, then, that with more education people become more critical of their government and less compliant with its demands. We should expect to find, therefore, that with more education people are more critical of authoritarianism and centralization in the present government, and more likely to engage in opposition to that government.

V. Conclusion & Policy implication

With the introduction of advanced technology, both Korea and China have tried to catch up with international developments. In order to compete successfully on the world market, both countries have tried to achieve economic reform, together with educational reform, based on free market mechanisms. Although the Chinese government tried to reintroduce political indoctrination after the Tiananmen Square crackdown, in June, 1989, the previous rigid, planned economy was hard to revive. Many experts believe that in

the long run, though the pace of change may slow, China will continue to rely on free market mechanisms to achieve growth, since dependence on foreign investment and technology is growing in China.

As measured by educational attainment, China, in the 1980s can be compared to that of Korea in the 1960s (World Bank, 1986). The industrial structure of China, in the 1980s is also more-or-less similar to that of Korea, in the 1960s. Despite the discrepancies of educational attainment and the industrial structure in both countries, the general need for manpower is not different. Both Korea and China need a higher quality labor force, heightening the concern for strategies of manpower development. Predicting manpower needs in a long term perspective, high level manpower with expertise and special skill will assume a greater proportion of the total labor force. Also enormous numbers of middle level manpower with vocational and technical skills will be required for economic development in both countries. Although strategies for manpower development may vary depending on the country, both countries need qualitative development of high level manpower and middle level manpower. Therefore, policy implications will be focused on higher education and vocational/technical education in both countries.

The increasing demand for professional and technical workers necessitates a rearrangement of the manpower supply system in a way that directs greater attention to the quality of higher education. To achieve a significant expansion of higher education by the end of the century, China needs to increase enrollments and to expand

facilities in higher education. On the other hand, in view of the projected demand for high-level manpower, there is no need to enlarge enrollment in colleges or universities in Korea. But rather, Korea needs to formulate a policy to provide support for the improvement of conditions for graduate education in science and technology. The graduate school should be equipped with research center which accommodates more than fifty percent of the enrolled students. The library and laboratory should be made available to graduate students all times. At the same time, a cooperative network should be developed to link graduate schools to research institutes. The decisive factor for engineering education is the quality of the faculties. Therefore, the decisive policy attempt is to upgrade the quality of the faculties.

With the rapidly developing trend toward heavy industries, there is urgent need for the quantitative and qualitative development of technical education. Especially, number of general high school graduates in China and Korea enter into the labor market without any vocational skills. Both China and Korea need to increase the efficiency of the present system of their vocational/ technical schools, and to offer a wide variety of training programs for those presently engaging in productive works. In view of the supply capacity of technical high school, technical education should be supplemented by vocational training in general high school and out-of-school programs. The vocational program of general high school may be distinguished from those technical high school by focussing on general skills transferrable to specific

uses. High quality teachers equipped with suitable industrial experience constitutes a prerequisite for the qualitative development of technical education. Industrial experience should be high valued as an important element of a teacher's qualifications.

Especially, if China is to leave the stage of relative poverty, it must modernize its production system. Within the current modernization process, middle management plays a central role in China. The personnel requires both technical and organizational skills coupled with a broad-based technical knowledge. The vocational/technical schools should keep the task of educating and training technicians and middle-level workers for industry, agriculture, schools, the health professions, and the economic/finance and trade sectors in China. Graduates of the school system, at any level, should have some sort of vocational/technical education, at least short-term training. Thus, consideration should be given to expand the new short-term vocational training programs, especially for general high-school leavers.

The development of skilled human resource requires an enormous amount of investment over a long time span, and such an investment does not produce an immediate effect. Education does bring about change, not the dramatic change, but long-term change for the better. Education policy makers should be cautious not to value education only for short-term dramatic changes in the economy and the society.

Appendix

China's 1985 Educational Reform

1) A Comment to a universal nine-year cycle of schooling, to be implemented in stages
2) The rapid introduction of technical and vocational schools at secondary-school level
3) Greater autonomy for higher education institutions in planning enrolments
4) Reform of the system which assigns graduates to jobs
5) Changes in curriculum and pedagogical practice

Korea's Educational Reform Committee in 1985-87

1) Change of school system 6-3-3-4 ---> K-5-3-4-4
2) Reform in university entrance examination
3) Modernization of school facilities
4) Improvement of quality of teachers
5) Changes in curriculum & instruction
6) Emphasis on science ed.
7) Excellence in higher ed.
8) Development of lifelong ed.
9) Autonomy of educational administration
10) Increase in educational investment

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